

WHAT IS CLAIMED IS:

1. A device for forming a groove pattern in a light-guiding plate, the device having a tool unit including a tool guide and a head, which comprises:

a heating plate disposed below the tool unit;

a stamper provided under the heating plate; and

a plurality of cutting tools extending from the lower side of the stamper at fixed intervals for forming a plurality of groove patterns in a surface of the light-guiding plate.

2. The device of claim 1, wherein the light-guiding plate is supported by a holder having a vacuum structure.

3. The device of claim 1, wherein the stamper is a metal plate.

4. The device of claim 1, wherein each of the cutting tools includes a rectangular or circular body, and a pyramid-shaped cutting part extending from the body.

5. The device of claim 4, wherein the cutting part is made of a processed diamond material.

6. A device for forming a groove pattern in a light-guiding plate, the device having a tool unit including a tool guide and a head, which comprises:

a heating plate disposed below the tool unit;

a stamper provided under the heating plate;

a heating nipper surrounding both sides of the heating plate and the stamper; and

a plurality of cutting tools extending from the lower side of the stamper at fixed intervals for forming a plurality of groove patterns in a surface of the light-guiding plate.

7. The device of claim 6, wherein the light-guiding plate is supported by a holder having a vacuum structure.

8. The device of claim 6, wherein the stamper is a metal material.

9. A method for forming a groove pattern in a light-guiding plate by using a tool unit having a plurality of tools which comprises:

fixing the light-guiding plate to a holder having a vacuum structure;

and

applying heat and pressure to the plurality of tools of the tool unit,

and

forming a plurality of groove patterns in a surface of the light-guiding plate.

10. The method of claim 9, wherein the heat is applied at a temperature of between 50°C and 120°C.

11. A method for forming a groove pattern in a light-guiding plate by using a tool unit having a plurality of tools, which comprises:

fixing the light-guiding plate to a holder having a vacuum structure;

and

forming a plurality of groove patterns in a surface of the light-guiding plate by applying heat and pressure to the plurality of tools of the tool unit and simultaneously, cutting the light-guiding plate to a desired size.

12. A device for forming a plurality of grooves in a light-guiding plate which comprises a tool unit containing a tool guide and a head,
a heating plate operatively connected to the head of the tool unit,
a stamper unit provided under the heating plate,
a plurality of cutting tools extending from the lower side of the stamper unit at fixed intervals, and
a reciprocity system operatively connected to the head of the tool unit, said reciprocation system being effective in forming a plurality of groove patterns in a surface of the light-guiding plate.